

**REMARKS**

Applicants submit that by the present Amendment and Remarks, this Application is placed in clear condition for immediate allowance. At the least, the present Amendment places the Application in better condition for appeal. Further, the present Amendment does not raise any new matter issue or any new issue for that matter, because the limitations of claim 3 have been incorporated into claim 1, and claim 3 cancelled. The amendments to claims 4, 6, 7 and 15 are editorial in nature. Accordingly, the present Amendment neither introduces any new matter issue nor introduces any new issue. Accordingly, entry and favorable consideration of the present Amendment are solicited pursuant to the provisions of 37 C.F.R. § 1.116.

**Claim Objection**

The Examiner objected to claim 15 noting an apparent typographical error and courteously suggesting remedial language. By the present Amendment claim 15 has been amended consistent with the Examiner's suggestion, thereby overcoming the stated basis for the claim objection. Accordingly, withdrawal of the objection to claim 15 is solicited.

**Claims 1, 3, 6 through 11 and 14 were rejected under 35 U.S.C. § 103 for obviousness predicated upon Chiu et al.**

In the statement of rejection the Examiner **acknowledged various differences** between the invention as defined in the rejected claims and Chiu et al., but then arrived at the obviousness conclusion **without** presenting any additional **factual** basis. This rejection is traversed.

Initially, the Examiner's rejection runs afoul of consistent legal precedent by failing to provide a factual basis to support the asserted motivation to span the **admitted differences**

between the claimed optical module and that disclosed by Chiu et al. In this respect the Examiner's attention is invited to *Teleflex Inc. v. Ficosa North America Corp.*, 299 F.3d 1313, 63 USPQ2d 1374, wherein the Court held that regardless of the source of motivation, factual basis must still be provided. On this basis alone the imposed rejection under 35 U.S.C. § 103 cannot stand.

At any rate, as previously pointed out, the limitations of claim 3 have been incorporated into claim 1. Applicants submit that the optical module now defined in independent claim 1 is neither disclosed nor suggested by Chiu et al. This is because there is a fundamental error in the Examiner's understanding and approach to the claimed invention. Specifically, in the paragraph bridging pages 2 and 3 of the September 28, 2005 Office Action, after admitting that Chiu et al. do not disclose a block mounted on lower casing, the Examiner asserts:

Since Applicant has not disclosed that mounting the block on the lower casing solves any stated problem or is for any particular purpose, and it appears the invention would perform equally well with a block mounted to the lower casing, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have mounted a block to the lower casing in any fashion as long as the block is securely fastened and defines a relative position for the optical components.

This approach is **legally erroneous** for two reasons. First, as previously pointed out, no factual basis has been provided to support the asserted motivation. *Teleflex Inc. v. Ficosa North America Corp.*, *supra*. Further, the Examiner's approach places the cart before the horse, because the Examiner bears the **initial burden** of establishing a *prima facie* basis to deny patentability to a claimed invention under any statutory provision, including 35 U.S.C. § 103. *In re Mayne*, 104 F.3d 1339, 41 USPQ2d 1451 (Fed. Cir. 1997). Until such time that a *prima facie* case has been established there is **no** burden upon an Applicant to come forward with any argument or any evidence, or to identify any problem that was solved. *In re Deuel*, 51 F.3d

*1552, 34 USPQ2d 1210 (Fed. Cir. 1995); In re Rijckaert, 9 F.3d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993); In re Piasecki, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984).*

Moreover, a close examination of the present invention reveals that the Examiner has misinterpreted and/or not appreciated the claimed invention. In this respect it is apparent from Fig. 1 of the present disclosure that the primary elements of the inventive optical module are a housing 30 which comprises a cover 20, an upper casing 37 and a lower casing 31, two OSAs 21 installed within the housing 30, a circuit board 20, and a block 10. The OSA 21 is fixed to the block 10 after soldering the lead pins thereof to the circuit board 20. Block 10 provides structures for holding or fixing the circuit board 20, which are denoted as a substrate supporting portion and a substrate pressing portion in the specification. Manifestly, it is desirable to fix the circuit board 20 to the structures and **avoid stress** to the lead pins.

The lower casing 31 provides a mount 31h on which the circuit board 20 is mounted and a receptacle 31j with a pair of openings 31m into which the head portion of the OSA 21 is inserted. An optical plug, attached to the optical connector, is inserted in the receptacle 31m in the side opposite that in which the openings 31m are formed. By optically coupling this optical plug with the OSA 21 within the receptacle 31j, the optical device in the OSA 21 and the optical fiber in the optical plug are optically coupled. In order to ensure this optical coupling between the device and the optical fiber, it is necessary to define the cavity within the receptacle 31j, whose dimensions are identical with those of the optical connector, and to position the head of the OSA 21 within the cavity. Therefore, it is necessary to position the OSA 21 against the lower casing 31, because the optical receptacle 31j is a part of the lower casing 31. The shape of the OSA 21, as shown in Fig. 1, is co-axial or cylindrical. It is quite difficult to position a member with such a cylindrical shape.

Moreover, the OSA 21 is fixed to the circuit board 20 with a plurality of lead pins, and the circuit board 20 extrudes into the end portion thereof from the housing 30 to communicate with the outside of the module. In other words, an external force to push the circuit board forward may be applied from the end thereof. This external force would affect the optical coupling of the OSA 21 with the receptacle 31j. Accordingly, and as one having ordinary skill in the art would have appreciated, the inventive module contains structures to fix the circuit board 20 to the block 10 to **escape this external force from affecting the optical coupling**, and to fix the block 10 to the lower casing 31 securing the optical position between the OSA 21 and the receptacle 31j. No such structure is disclosed or suggested by Chiu et al.

Specifically, advertizing to Fig. 3 of Chiu et al., one having ordinary skill in the art would have recognized that the disclosed optical module comprises an optical transceiver and provides OSAs (110, 111), block 120, circuit board 250, and top and bottom frames (301, 303). As one having ordinary skill in the art would also have recognized, structures provided by the present invention to provide the necessary functions are quite **different** in the claimed invention vis-à-vis the structures disclosed by Chiu et al.

Firstly, the lower casing 31 of the present invention which may be considered to correspond to the bottom frame to hold the circuit board 250, does not provide the receptacle 31. The bottom frame to hold the circuit board 250 in the device of Chiu et al. is quite independent of the receptacle 161 or the nose 151 for providing the cavity. The members which appear to correspond to the OSA 21 of the present invention may be considered to be the transmitter 110 and the receiver 111. However, members 110 and 111 are fixed to the block 120. It is by fixing this block 120 to the nose 151 that constitutes the cavity of the receptacle that realizes optical alignment between the members 110 and 111 and the receptacle.

However, considering the combination of the circuit board 250 and optical element 103, which comprises the transmitter 110, the receiver 111, the block 120 and the nose 151, one having ordinary skill in the art would have appreciated that the concept of combining the circuit board 250 with the optical element 103 is quite **different** than in the present invention. In accordance with the present invention, the block 10 directly fixes the circuit board 20. However, this is **not** the case in the module disclosed by Chiu et al.

Rather, in the module disclosed by Chiu et al., at the first side of the circuit board 250 is fixed to the lower frame 310, and the tip 355A of the rail 305A within the lower frame 301 is inserted into the opening 155 provided in the lower center of the block 120. Further, by mating the alignment rail 307 provided in the end corner of the upper frame 303 with the slit provided in both sides of the circuit board 250, and mating the opening 317 in the top end of the upper frame 303 with the top post in the top surface of the block 120, the lower and upper frames, 301 and 307, and the circuit board 250 are combined with the block 120.

As apparently appreciated by the Examiner, the leads, 201 and 205, of the transmitter 110 and the receiver 111 hold the circuit board 250 in the module disclosed by Chiu et al. By this arrangement the leads appear to hold the circuit board and realize optical coupling without affecting the optical coupling between the receptacle 31j and the OSA 21 both on the block. The substance of the coupling is, attributed to the leads, 201 and 205, which absorbs the stress applied to the circuit board 250 by the flexibility thereof, **not the rigid fixing therebetween as in the present invention employing block 10 and circuit board 20**. Clearly, as one having ordinary skill in the art would have recognized, the mechanism employed by Chiu et al. for **fixing** the circuit board involves quite a **different concept** from that of underpinning the present invention. This difference is clearly **functionally significant**.

Specifically, to hold the circuit board by the leads as in the module disclosed by Chiu et al. would **reduce reliability**. The bonding of the leads, 201 and 205, to the circuit board 250 is carried out by soldering the leads onto the wiring pattern 203 on the circuit board. The first function of soldering is to secure electrical contact, **not to strengthen mechanical contact**. Further, to whatever extent soldering improves mechanical strength, the stress applied to the circuit board 250 must be **absorbed by the leads**, 201 and 205, themselves and the root points where the leads are connected to the transmitter 110 and the receiver 111. However, as one having ordinary skill in the art would have understood such a configuration would **not have reliable strength**.

Based upon the foregoing, one having ordinary skill in the art would have understood that the inventive optical module requires that the block 10 must be fixed to the lower casing 31 for the circuit board not to affect the optical coupling conditioned between the OSA 21 and the receptacle 31j, because the receptacle 31j is constructed in unity with the lower casing 31. However, in the module disclosed by Chiu et al., because the optical element 103 including the receptacle is independent of the lower frame 310. The lower and upper frames, 301 and 303, that installs the circuit board 250 is necessary to be fixed to the block 120, not the circuit board 250 to be fixed thereto. However, before fixing the lower and upper frames to the block 120, the circuit board 250 is held by only the leads, 201 and 205. Therefore, it would be very difficult to achieve the requisite holding strength and the resulting module would exhibit inferior reliability.

Based upon the foregoing, it is apparent that there are significant **structural differences** between the claimed optical module and that disclosed by Chiu et al. These structural differences are **functionally significant**. The Examiner improperly invoked the obviousness

conclusion without providing a **factual** basis to address **admitted structural differences**.

Moreover, as discussed above, these structural differences are important in achieving the requisite holding strength and, hence, the requisite reliability. There is **no** apparent factual basis upon which to predicate the conclusion that one having ordinary skill in the art would have been realistically impelled to modify the **specific module disclosed by Chiu et al.** to arrive at the claimed invention absent, of course, **improper** reliance upon Applicant's disclosure. *Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d 1082, 227 USPQ 337 (Fed. Cir. 1985).

Applicant, therefore, submits that the imposed rejection of claims 1, 3, 6 through 11 and 14 under 35 U.S.C. § 103 for obviousness predicated upon Chiu et al. is not factually or legally viable and, hence, solicits withdrawal thereof.

Applicant acknowledges, with appreciation, the Examiner's allowance of claims 15 and 16. Applicant also acknowledges, with appreciation, the Examiner's indication that claims 4 and 5 contain allowable subject matter. Based upon the foregoing it should be apparent that the imposed objection and rejection under 35 U.S.C. § 103 have been overcome and, hence, all pending claims are in condition for immediate allowance. Favorable consideration is, therefore, solicited.

**Application No.: 10/655,589**

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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**Date: September 14, 2005**